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In cooperation with State, Federal and Other Agencies

COTTON INSECT CONDITIONS FOR WEEK ENDING AUGUST 5, 1950

(Tenth Cotton Insect Survey Report for 1950)

Insecticides are being used more widely and in larger quantities for cotton insect control than during any previous year. On thousands of farms there are prospects of satisfactory yields of cotton where the prospects would now be very poor if it had not been for the use of insecticides during June and July. The insecticide industry deserves much credit for what it has done and is doing to help hold down the very high boll weevil infestations of 1950.

For control of each of the cotton pests there are now several insecticide formulations that will give satisfactory results when properly applied. Shortages of certain insecticides still continue in parts of most of the cotton growing States but if a farmer cannot obtain his favorite or preferred insecticide, he can obtain some other material that if properly used will give equally as good results in controlling the insects.

The boll weevil situation continues to be extremely critical. During August the weevil will take a terrific toll in squares and green bolls and the yield of cotton will be seriously reduced on thousands of farms if proper insecticides are not applied carefully and frequently. The cotton growers, county agents, entomologists, insecticide manufacturers and all others interested in cotton production must continue this fight throughout August or as long as there are green bolls to protect.

The boll weevil is now more widely distributed than during the first half of August in any year since 1923. It has probably already reached most of the cotton growing counties of Virginia, Tennessee, and Missouri, and if conditions continue favorable for the weevils all of the cotton counties in those States may be infested before the end of the season.

In some areas the boll weevil is causing much more damage than in 1949 but in other areas, due to natural control or control by insecticides, the weevils are not causing as much damage as in 1949. Reports indicate that the weevil is now causing more damage than a year ago during the first week of August in Texas, Oklahoma, Louisiana, Arkansas, Missouri, Tennessee, Virginia, and North Carolina.

In parts of South Carolina, Georgia, Alabama, and Mississippi the weevils are apparently being held in check better than last year but if an adequate fight is not continued the weevils could cause as serious damage in those States as it caused last year.

The cotton leafworm is more widely distributed and is defoliating more cotton than during any recent year in Texas, Oklahoma, New Mexico, Louisiana, and Arkansas. It has reached Arizona and Mississippi. It has probably reached some cotton fields in Tennessee, Missouri, and other States. Not since 1943 has the cotton leafworm reached such a large area by August 1.

The "bollworms" are causing noticeable damage. The most abundant species this year is the tobacco budworm, Heliothis virescens. It has probably caused greater damage to cotton up to August 1 than any insect except the boll weevil.

Excerpt from the Release on Cotton Production that was issued by the Crop Reporting Board, Bureau of Agricultural Economics, USDA, on August 8, 1950:

"Late June was generally favorable for cultivating the crop and applying insecticides for control of boll weevils and other insects over most of the Belt. Poisoning operations were very extensive and were begun earlier than ever. Where poisons were applied in accordance with approved practices the unusually large population of early weevils was being controlled. However, weevil population in unpoisoned fields in nearly all infested areas of the Belt was reported at record to near-record levels.

"During July frequent rainfall and below-average temperatures, especially the latter half of the month, hindered the application of poisons in most States. Weevil infestation on August 1 was above average in nearly all infested areas, and was at record levels in many States. Extremely heavy weevil damage is indicated in North Carolina, north Georgia, Alabama, Oklahoma, and parts of Arkansas and Louisiana. Effective weevil control has been maintained in those areas where weather conditions permitted a continuation of poisoning operations."

INSECTICIDES AND DEFOLIANTS AND EQUIPMENT FOR APPLYING THEM

South Carolina: The summary statement that accompanied the Cotton Letter issued by the Extension Service, Clemson College, on August 1 reports shortages of a mixture containing 3% gamma benzene hexachloride and 5% DDT in Darlington, Greenwood, Orangeburg, and Richland Counties; shortages of calcium arsenate in Colleton County; shortages of toxaphene dust and spray mixtures in Darlington County, and shortages of chlordane in Darlington County; shortages of spraying machines in Berkeley and York Counties; spraying machine parts in Chester County; mule dusters and hand dusters in Oconee County; and tractor dusters in York County.

Oklahoma: C. F. Stiles wrote on August 5: "The Cotton Insect situation is still critical over most of the State and insecticides are becoming more scarce each day. Yesterday I was in LeFlore County and found that the stocks of insecticides were practically exhausted."

Alabama: F. S. Arant wrote August 1: "The insecticide situation in Alabama appears to have eased somewhat, at least for the present. Continued rain, however, is delaying the setting and maturation of a crop and will necessitate the use of insecticides for some time to come."

G. B. Wood and C. D. Porterfield reported on August 4: "All of the 10 west-central counties visited reported small supplies of insecticides on hand. Three counties had shortages of 20% toxaphene dust. Most of the insecticide dealers reported that they were able to buy materials needed."

Mississippi: E. W. Dunnam reported on August 4: "Insecticide supplies have changed but little during the past week. Weevil and worm poisons are yet available in fair quantities but dust formulations containing GBHC are getting some tighter. TEPP continues to be used in sprays for aphid and spider mite control when necessary which relieves this shortage of dust to a high degree."

Louisiana: R. C. Gaines reported on August 3: "Shortages of certain insecticides, mostly 3-5-40, have developed."

Excerpts from Weekly Cotton Weather Bulletin issued by the Weather Bureau, U. S. Department of Commerce, New Orleans, Louisiana, August 1:

Weather and Cotton over the Belt: Rather frequent and occasionally heavy showers continued over the Belt from Arizona to the Atlantic States except in south and central Texas and northwest Louisiana. Cultivation and poisoning for insects was hampered generally and completely stalled in much of the area; boll weevils are reported spreading into areas not generally subject to them and have been quite active under prevailing weather conditions. Except in south and central Texas, dry and hot sunny weather is urgently needed over the Belt.

Texas: Bollworms, boll weevils and leafworms prevalent north-central.

Oklahoma: Rains, cool weather unfavorable growth - rapid development boll weevils generally, many present southwest where seldom seen.

Arkansas: Prospects still fairly good, fruiting profusely; very favorable for boll weevils.

Louisiana: Three to six days with showers Mississippi Delta and southeast rolling hills. Favorable for cultivation, poisoning northwest.

Mississippi: Three to six days with showers generally heavy except in upper Delta. Control insects hampered.

Tennessee: Prospects fair to good except poor southern counties account boll weevil damage.

Alabama: Growing rapidly but weather favorable for boll weevil activity.

Georgia: Fruiting well, too many showers favored weevil activity; dry weather needed.

South Carolina: Progress poor to fair account too much rain causing rank growth, increasing weevil activity, reducing effectiveness of poisoning.

North Carolina: Condition cotton average only fair as boll weevil control difficult some areas.

Arizona: Insect infestation very spotty. Lygus and bollworms increasing some areas.

California: San Joaquin cotton stand looks good, excellent growth, some mite infestation.

New Mexico: Some leaf spot and worm infestation southeast, dusting active.

BOLL WEEVIL

North Carolina: George D. Jones and J. E. Clement reported on August 4: "First generation weevil development like the cotton crop appears to be about a week behind last season. Migration was under way this week in southern counties."

Boll weevil infestations are high and weevils were found in all of the 244 fields examined in 26 counties. The average infestation in 126 poisoned fields was 40% punctured squares as compared with 18% last week. The infestation ranged from 1 to 25% punctured squares in 41 fields; from 26 to 50% in 45 fields; and more than 50% of the squares were punctured in 40 fields. The 118 unpoisoned fields were infested at an average rate of 84% punctured squares as compared with 64% last week. In 93 fields more than 75% of the squares were punctured; in 19 fields the infestation ranged from 51 to 75%; and in only 6 fields was the infestation less than 50%.

South Carolina: The Extension Service Cotton Letter issued at Clemson College on August 1 states that the average boll weevil infestation in the poisoned fields examined in 35 counties was 27% punctured squares as compared with 21% last week. All of the unpoisoned fields examined were infested at an average rate of 77% punctured squares as compared with 71% the previous week. Indications of migration are present in Aiken, Bamberg, Berkeley, Clarendon, Colleton, Darlington, Dillon, Horry, Jasper, Lee, Orangeburg, Richland, and Williamsburg Counties.

The entomologists at the Pee Dee Experiment Station reported that boll weevil migration started during the last week in July and the movement greatly increased during the past week. During the 8 day period from July 21 to 28, inclusive, 54 boll weevils were removed from the flight screen while during the 7 day period from July 29 to August 4, inclusive, 189 boll weevils were removed from the same screen.

Squares are becoming scarce in most fields. Boll weevils are abundant and most of the squares are punctured in both poisoned and unpoisoned cotton. In the examination of 60 unpoisoned fields in 12 counties the average infestation was 96% punctured squares as compared with 77% in 36 poisoned fields.

Georgia: Boll weevils were found in 424 of the 425 fields examined in 108 counties. In 88 fields more than 50% of the squares were punctured; in 114 fields the infestation ranged between 26 and 50% punctured squares; in 138 fields the range was between 11 and 25% punctured squares; in 84 fields the range was between 1 and 10% punctured squares; and only one field, in Laurens County, was apparently free of weevils. The weevil infestations are spotted. It is assumed that the heavy infestations occur in the fields where insecticides have not been used properly and the light infestations occur in the fields that have been treated regularly and thoroughly with insecticides when needed. Although the boll weevil situation is very serious it is apparently not now quite as serious as it was a year ago during the first week of August.

Alabama: Rains and showers have been favorable for rapid boll weevil development and have interfered with and iterrupted the poisoning program. Boll weevil infestations are high in most areas. The average infestation in 70 fields in 10 west-central counties was 54% punctured squares. The infestations ranged from 26 to 50% punctured squares in 31 fields; from 51 to 75% in 33 fields; and more than 76% of the squares were punctured in 6 fields.

Tennessee: In the examination of 27 fields in Fayette, Hardeman, McNairy, and Shelby Counties the average weevil infestation was 51% punctured squares as compared with 37% last week. The infestations ranged from 1 to 50% punctured squares in 13 fields and in 14 fields more than 50% of the squares were punctured.

The boll weevil has now reached most of the cotton growing counties of Tennessee and will probably reach all cotton fields in the State before the end of the season. In the southern counties adjacent to Alabama and Mississippi most of the cotton fields have heavy weevil infestations and all fields in those counties are probably now infested. The estimated reduction from full yield caused by the boll weevil in Tennessee of 13% of the crop in 1949 and of 21% of the crop in 1932 could be exceeded this year if conditions continue favorable for the weevils and the farmers do not fight them with insecticides.

More information is needed in regard to boll weevil infestations. Additional records and reports from all counties of the State will be welcome.

Mississippi: Clay Lyle, Entomologist, reported August 7: "Rains continued to hinder cotton insect control measures in several sections of the State during the past week and severe damage is occurring in some localities. Heavy weevil infestations are present on all unpoisoned hill farms. Migration of the boll weevil has already begun in some sections and may be general over Mississippi during the coming week."

The boll weevil infestation in the Delta increased 8% during the week, whereas over the same period last year it increased 9.7%. The average infestation in 342 of the 361 fields examined in 17 Delta counties was 28% punctured squares as compared with 20% last week and 50% a year ago. No infestation was found in 19 fields. The infestation ranged from 1 to 10% punctured squares in 126 fields; from 11 to 50% in 142 fields; and in 74 fields more than 50% of the squares were punctured.

Louisiana: The average infestation in 634 fields in 25 parishes was 27% punctured squares as compared with 23% last week and 21% two weeks ago. The infestation ranged from 1 to 10% in 179 fields; from 11 to 25% in 196 fields; from 26 to 50% in 160 fields, and in 99 fields more than 50% of the squares were punctured. Infestations have increased rapidly in many fields due to heavy emergence of second generation weevils and to migration in local fields.

Arkansas: Charles Lincoln, Extension Entomologist, wrote on August 3: "Second brood boll weevils are emerging in numbers in old cotton in Chicot and Desha Counties. In the Southern Delta and west of Crowley's Ridge there is still much heavily infested cotton. In the Northern Delta east of Crowley's Ridge cotton is clean and there will not be enough weevils to completely infest the area. In the hills and adjacent bottom lands infestation is already general from first brood weevils. Weevils will migrate from these areas to nearby Delta regions particularly along Crowley's Ridge."

In the examination of 48 fields in 6 southeastern counties the infestation averaged 30% punctured squares as compared with 19% last week and 20% two weeks ago. No punctured squares were found in 1 field in Lincoln County. In 29 fields the infestation ranged from 1 to 25%; in 8 fields from 26 to 50%; and in 10 fields more than 50% of the squares were punctured. The average infestation in 12 fields in 2 southwestern counties was 48% as compared with 42% last week and 46% two weeks ago. The infestation ranged from 11 to 25% in 2 fields; from 26 to 50% in 5 fields; and more than 50% of the squares were punctured in 5 fields. In Jackson, Monroe, Phillips, and Pulaski Counties the infestation in 350 fields averaged 7%. No punctured squares were found in 88 fields. The infestation ranged from 1 to 10% in 191 fields; from 11 to 25% in 51 fields; from 26 to 50% in 17 fields, and more than 50% of the squares were punctured in 3 fields in Phillips County.

Missouri: W. R. Enns, Department of Entomology, Columbia, wrote on July 28 that the first infestation of boll weevil in many years was found on cotton near Current View, Ripley County, about a mile from the Arkansas line. The second and heavier infestation reported in Missouri this year was mentioned in the Ninth Cotton Insect Survey Report for the week ending July 29 based on information furnished by Dr. Leonard Haseman. Mr. Enns mentions that the heavier infestation in Butler County was found on July 18. Undoubtedly the boll weevil occurs in many other cotton fields in Butler and Ripley Counties and also in several other counties. It will probably cause more damage this year than during any recent year and if conditions are favorable for the weevil, it could cause more damage than in any previous year.

Texas: The boll weevil continues serious. It is destroying the top crop of bolls in some fields, while in other fields, especially in northern and eastern areas, the entire crop of squares, blooms, and bolls is being destroyed. The average infestation in 471 fields in 69 counties was 37% punctured squares as compared with 33% last week. No weevils were found in 40 fields. The infestation ranged from 1 to 10% punctured squares in 78 fields; from 11 to 25% in 100 fields; from 26 to 50% in 108 fields, and more than 50% of the squares were punctured in 145 fields. The weevil is destroying more cotton in Texas than during the past several years.

Oklahoma: The Oklahoma Crop and Weather Bulletin issued in Oklahoma City on August 1 states: "The week was unfavorable for cotton as rains and cool weather for the fourth consecutive week favored the development of boll weevils. Cotton plants have made rank growth and cultivation has been impossible due to excessive rains. Boll weevils are increasing rapidly and are present in many fields in the southwestern area where they seldom appear. The cotton crop is in poor to fair condition due to insect damage. Wet weather has prevented poisoning and frequent rains have minimized the effects of poison where it has been used."

The average infestation in 77 fields in 10 counties was 39% punctured squares. The infestation ranged from 1 to 25% in 36 fields; from 26 to 50% in 13 fields; and more than 50% of the squares were punctured in 28 fields. All of the 77 fields examined in, Bryan, Caddo, Coal, Grady, Harmon, Hughes, Jackson, Logan, Okfuskee, and Payne Counties were infested with boll weevils. C. F. Stiles stated on August 5: "This is a record infestation for Oklahoma." If conditions continue favorable for the weevils every cotton field in the State could be infested before the end of the season.

COTTON LEAFWORM

Texas: The cotton leafworm continues to spread in most sections of the State where the cotton is not mature. Leafworms were found in 5 counties the past week, in addition to the 105 counties previously reported, making a total of 110 counties known to be infested. Succulent, late-fruiting cotton is particularly attractive to leafworms and many heavy infestations are developing which will necessitate control measures.

Oklahoma: C. F. Stiles, Extension Entomologist, reported August 5: "So far the leafworms have not defoliated very many of the fields. They are worse in the western part of the State where cotton is late than they are in the eastern half of the State."

In addition to the 29 counties previously reported, the following counties are now known to be infested: Beckham, Custer, Logan, and Hughes, making a total of 33 counties infested to date.

New Mexico: L. H. Moore, Extension Entomologist, reported August 8: "The cotton leafworm has now been repoted from the following counties: Dona Ana, Socorro, Luna, Eddy, Lea, Chaves, De Baca, Roosevelt, and Quay.

Louisiana: Cotton leafworms are causing serious damage in Acadia and Evangeline Parishes.

Mississippi: Several small cotton leafworm larvae were found on cotton at the Delta Branch Experiment Station at Stoneville, Washington County, August 2. No other infestations have been reported since the first was found in Washington County July 14

MISCELLANEOUS INSECTS

South Carolina: Light to medium infestations of "bollworms" were observed in several fields in Florence County during the week.

The Cotton Letter issued at Clemson College on August 1 mentions the following items: "Bollworms - with few exceptions, the bollworm damage is confined to those counties in the Upper Coastal Plain and Lower Piedmont counties.

"Aphids - Seventy-five percent of the counties reporting aphids were either from the Sandhills or Piedmont areas.

"Red Spider - With the exceptions of Horry and Spartanburg Counties, all red spider damage is confined to the Upper Coastal and Lower Piedmont counties.

"Thrips - These pests are reported in Chester, York, Oconee, Laurens, and Jasper Counties."

Georgia: "Bollworms", probably chiefly the tobacco budworm, *Heliothis virescens*, are reported as damaging cotton in the Coastal Plain counties.

Florida: On July 15 Dr. J. W. Wilson, Entomologist, Central Florida Experiment Station, Sanford, collected 23 lepidopterous larvae on cotton. J. F. Franclemont found that this collection consisted of 17 specimens of the bollworm, *Heliothis armigera* (Hbn.), and 6 specimens of the tobacco budworm, *Heliothis virescens* (F.). This collection probably had a larger proportion of bollworms than any similar collection that has been received this season, as in most of the collections made on cotton there have been more tobacco budworms than bollworms.

Alabama: Lepidopterous larvae were collected in Tuscaloosa, Fayette, Marengo, and Hale Counties. One field in Hale County had 18% of the squares damaged by lepidopterous larvae; however, only a few live "bollworms" were found. Aphid infestations were observed in 52 of the 70 fields examined. These were classified as 2 heavy, 21 moderate, and 29 light. Red spider mites were reported to have been doing some damage in Fayette County but no fields were observed where they were present in damaging numbers.

F. S. Arant collected 4 lepidopterous larvae from cotton near Prattville, Elmore County, on July 30. These specimens were identified by J. G. Franclemont as the tobacco budworm, *Heliothis virescens* (F.).

Louisiana: Serious infestations of red spider mites have been reported from St. Landry, Acadia, and Evangeline Parishes. Mites are causing some damage to fields in Rapides Parish near Boyce.

In the examination of 18 fields on one plantation in East Carroll Parish lepidopterous larvae were found at an average of 5 larvae and 18 eggs per 100 plant terminals. Other spotted infestations have been reported in northeastern and northwestern sections of the State.

Mississippi: Clay Lyle reported on August 7: "Numerous complaints of failure to control bollworms were attributed to frequent rains washing off the insecticide before it gave control."

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